Since the text has been modified, the line numbers mentioned are not actual anymore — they refer to the original version.

**L 33: show the entire vertex distribution.**

Answer: plots added

**L 35-36: you should be specific, what is small? what is relatively large decay length?**

Answer: Exact values are shown later in the text (p.3) Here the general principles are defined.

**L 40-45: add a figure showing the location of the detectors T0, BC2, Veto and BD mentioned here.**

Answer: figure is added.

**L 54: how is a hit defined in the GEM tracking stations?**

Answer: definition is added.

**L 58: Define the distance of closest approach and show a distribution plot.**

Answer: definition and plot added.

**L 61: specify the mass range used in the fitting procedure.**

Answer: the mass range is specified in the text and in the plots.

**L 65-67: this is a very poor way to estimate the systematic uncertainty of the lambda yield. The lambda yield depends on the background fitting range, the functional form assumed for the background fitting and the range used to count the signal. You have considered only the last factor and even that with very limited scope. I would suggest to look at the variation of the lambda yield that results from:**
**-variation of the background fitting range**
**-use a 5 and/or a 3 degree polynomial function for the background or a different functional form.**
**-count the lambda yield in a 2 sigma and 1.5 sigma windows and compare to the 2.5 sigma yield after correcting for the fractional yields assuming gaussian distribution.**
**Use all these variations to estimate the systematic uncertainty in the lambda yield.**

Answer: The error of the Lambda signal includes the uncertainty of the background subtraction. The error was calculated according to the formula:
sig = hist - bg
err = sqrt(hist + 0.5*bg),
assuming that the background is estimated with the uncertainty of sqrt(0.5*bg).
If the variation of the background shape or the signal integration range gives larger uncertainties than sqrt(0.5*bgn),

the largest uncertainty is taken as a signal error. The +/-2.5 sigma uncertainty mentioned in the text , the variation of the background shape and the fit range were treated as sources of the signal uncertainty. The text is added to describe the approach.

**L 69: show a figure of sigma vs pt for all mass spectra measured and compare to the expected MC mass resolutions.**

Answer: Sigma of Gaussian fit of the Lambda signal is added to the invariant spectra plots. The sigma of the embedded Lambda is shown in Fig.13(left) for comparison.

**-Fig. 11: are you referring to absolute efficiencies? It is not clear how do you obtain them.**

Answer: 1. Select good quality tracks with the minimum number of hits per track N.
2. Check that track crosses the detector area, if yes, add one track to the denominator,
3. if there is a hit in the detector, which belongs to the track, and the number of hits per track > N (track has the minimum number of hits N in the remaining detectors) , add one track to the numerator.
4. Detector efficiency = sum of tracks in numerator / sum of tracks in denominator.

This text is added to the note.

**-Page 4 reconstruction efficiency: the rationale followed to obtain the reconstruction efficiency is somewhat awkward. Usually, one does single particle simulation, in this case the decay of a single lambda with given pt and y into proton+pion, one checks whether the decay products fall into the detector acceptance and then proceed to reconstruction using exactly the same cuts as in the analysis of real data; this yields epsilon_acc and epsilon_cuts. Finally one checks the effect of detector occupancy by embedding the reconstructed single particle decay products into real events that will yield epsilon_emb.**

Answer: Simulation only the decay products of Lambda does not reproduce the detector effects such as mixing of hits from multiple tracks and beam particles. That is especially important in the beam area. Realistic estimation of the efficiency of the kinematic and spatial cuts is only possible with Lambda embedded into real environment, i.e. into real data events. Also the embedding procedure modifies the parameters which affect the selection cuts, therefore we need to do it before applying the cuts.

**L 129-130: were the delta electrons produced by the C beam in the air or other material around the target taken into account?**

Answer: simulation shows that delta electrons produced in the target dominate over other sources like air or beam counters in front of the barrel detector.

**Figs. 20-23: These are presumably the figures for which preliminary status will be requested. These figures as presented in the AN are unacceptable. All figures lack systematic uncertainties. I presume that the horizontal bars represent the bin size and not an uncertainty; I would suggest to remove them; add units to the vertical scale in Figs. 20-23. I believe that in Fig. 23 you want to plot the invariant pT distribution; if so, the vertical scale of the four panels should be:**
**1/Nevent 1/2pi 1/pT d2N/dpTdy [units]**

Answer: In Fig. 20-23 we show yields (multiplicities) of Λ hyperons produced per event per unit of pT (or unit of y) in minimum bias interactions. The yields in bins of pT and y are calculated according to the formula at line 149. The captions are extended and the vertical axis labels are corrected.

**Rapidity density plotted in the left panel of Fig. 20-22: this is an important result but there is zero information on how the rapidity density was obtained and what are the associated systematic uncertainties**

Answer: In Fig. 20-23 we show yields (multiplicities) of Λ hyperons produced per event per unit of pT (or unit of y) in minimum bias interactions. The yields in bins of pT and y are calculated according to the formula at line 149. The systematic errors are added.

**Fig. 23 left panels: What is the chi square per degree of freedom of the fits of the pt distribution to exponential function?**

Answer: chi2/ndf are added to the table with the PT spectrac fit results.

**L 178… Systematic uncertainties: the list is incomplete; add the systematic uncertainty in the determination of the lambda yield and the systematic uncertainty in the determination of the luminosity and in the inelastic cross sections. Summarize in a table all systematic uncertainties and their quadratic sum.**

Answer: The uncertainty of Lambda signal and background evaluation is included into the first error (see the answer to L 63-65). The normalization uncertainty of the inelastic cross section, trigger efficiency are added to the text. The total systematic uncertainty is summarizedin a table.

**Some more technical comments:**

**-add an author list, listing the names of people that have performed the analysis.**

Answer: added

**-add an abstract**

Answer: added

**-the right panel of Fig.1 is not readable.**

Answer: the aim was to show the detector configuration. It is difficult to increase the figure in the text. The reference to the original plot is added.

**-the description of the experimental conditions lacks important information like what was the average beam intensity, the magnetic field strength across the experimental set-up?, does every GEM station consist of 3-stage GEM amplification? pad sizes? operating conditions of the GEM detectors (voltage and gain)?**

Answer: The average beam intensity and the magnetic field are specified in the text. We do not plan to give details of GEM detectors in the analysis note. We made a reference to the GEM TDR chapter instead.